

**POLYSILICON BACK-GATED SOI MOSFET FOR DYNAMIC
THRESHOLD VOLTAGE CONTROL**

ABSTRACT OF THE DISCLOSURE

- 5 A method of forming a silicon-on-insulator (SOI) metal oxide semiconductor field
effect transistor (MOSFET) device is provided. The SOI MOSFET device includes a
polysilicon back-gate which controls the threshold voltage of a polysilicon-containing
front-gate. The back-gate functions as a dynamic threshold voltage control system in the
SOI MOSFET device because it is suitable for use during circuit/system active periods
10 and during circuit/system idle periods.